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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/033,147

10/19/2001

Paul F. Langille

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7590

06/15/2005

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EXAMINER

AHMED, SALMAN

ART UNIT

PAPER NUMBER

2666

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/033,147

Applicant(s)

LANGILLE ET AL.

Examiner

Salman Ahmed

Art Unit

2666

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 7-9, 14-16, 18 and 20-22 is/are rejected.
- 7) ☒ Claim(s) 4, 6, 10-13, 17, 19 and 23-26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/23/02, 9/9/02
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Moir (US PAT PUB US2002/0118644).

A method of operating a network device having a plurality of physical interfaces coupled to corresponding physical network links connecting the network device to other network devices and routing protocol messages transmitted by a given virtual router at a given interface, obtaining physical interface information from the linked set of virtual interfaces associated with the generic interface identifier of the interface, the physical interface information identifying a corresponding physical interface of the network device via which the routing protocol messages are to be transmitted, and transmitting the routing protocol messages on the network link coupled to the identified physical interface is anticipated by Moir. In page 2 section 0028, Moir states figure 1 as a block diagram illustrating, at a high level, the operation of a network traffic manager, in the exemplary form of a virtual machine. Specifically, FIG. 1 illustrates the virtual machine has been hosted on a network connection (or data communications) device (e.g., a bridge, switch

or router). In page 4 section 0047 and figure 7 Moir states virtual interface being a logical description of a physical interface, which hides the details of any underlying multiplexing such as, an ATM physical layer may be mapped as illustrated in FIG. 7 and finally Moir states in page 4 section 0048 (also can be seen in figure 2 and figure 7) that each virtual interface includes configuration to set the type of underlying physical interface (e.g., Ethernet, VDSL, ADSL, etc.), assign a driver instance (i.e., the realization of the physical layer), assign the label space of the physical layer that the virtual interface can use.

A plurality of virtual routers, with each virtual router being associated with a corresponding different virtual private routed network (VPRN) and employing generic interface identifiers to identify associated interfaces at which routing traffic for the associated VPRN is received and transmitted, and maintaining a plurality of virtual interfaces, the virtual interfaces being organized into linked sets each operative to associate a generic identifier used by a given virtual router with a corresponding physical interface to another network device serving the same VPRN is anticipated by (page 2 section 0027) a method and system to implement policy-based network traffic management comprising (page 2 section 0030 and figure 7) of virtual interfaces in case of ATM having multiple VCCs and (page 4 section 48) each virtual interface being created to support a specific network topology, and specifying how to map a packet to and from the external network.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moir (US PAT PUB 20020118644) as applied to claims 1 and 14 above, and further in view of Li (US PAT 6049829).

Moir states (page 4 section 0047 and figure 7) how virtual interface being a logical description of a physical interface, hides the details of any underlying multiplexing such as, an ATM physical layer and may be mapped as illustrated in FIG. 7.

Moir does not mention in details how virtual channels are mapped into physical channels.

Li states how virtual channels can be mapped into physical channels. In column 4 lines 1-5 Li states that to coordinate the setup of link, physical channel and related pathways to information client, the client establishes a channel map for the association of virtual channels, physical channels, and content type in the virtual channels. In column 4 lines 7-14 he further states Virtual Channel ID is the identifier of a virtual channel, and may be used as one value of the tag data in expanded HTML. RF Channel Number identifies a 6 MHz-wide analog bandwidth allocation that a digital bit stream is modulated on. Stream ID identifies a given partition of a digital bit stream, and is usually used as part of the header of packets. In this illustrative embodiment, a physical

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channel is effectively identified by a combination of RF Channel Number (FDM) and Stream ID (SM).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Moir's teaching in include Li's teaching of how virtual channels can be linked to physical channels. The motivation is that, using some kind of identifier associated to a virtual channel makes it simpler for virtual channel multiplexing into physical channels. Such identification and mapping makes routing configuration and maintenance more manageable.

5. Claims 3 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moir (US PAT PUB 20020118644) as applied to claims 2 and 15 above, and further in view of Chen et al. (US PAT 6501758), hereinafter referred to as Chen.

Moir states (page 4 section 0047 and figure 7) how virtual interface being a logical description of a physical interface, hides the details of any underlying multiplexing such as, an ATM physical layer and may be mapped as illustrated in FIG. 7.

Moir does not disclose any kind of automatic protection switching or aps scheme in his teachings.

Chen teaches of using automatic protection switching scheme in his teachings in column 9 lines 27-31 and figure 2d. He states how ATM layers survivability for traffic carried on ATM channels can be implemented using an ATM layer protection scheme, such as virtual path 1+1 automatic protection switching (VP APS).

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Moir's teaching to incorporate Chen's automatic protection switching scheme. The motivation is that automatic protection switching is necessary for implementing fault-tolerant network.

6. Claims 5, 7-9, 18 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moir (US PAT PUB 20020118644) as applied to claims 1, 2, 14 and 15 above, and further in view of document "Cisco MPLS Controller Software Configuration Guide", Release 9.3.0, April 2000.

Moir discloses (page 11 section 128) that separate circuits may be static channels using permanent virtual circuits or dynamic channels utilizing some combination of signaling (e.g., label distribution or call set-up).

Moir does not talk about how labels specifically inner labels and outer labels are used to route calls via virtual channels.

"Cisco MPLS Controller Software Configuration Guide", Release 9.3.0, April 2000 pages 2.27-2.29, teaches of how labels are used to route traffic through the network. It states in the section under the heading "Forwarding in a Cisco Virtual Private Network Service" how packets arrive at the origination router from a particular customer VPN with a generic identifier ip address. Origination router looks up its VPN forwarding table, gets two different labels to put on the packet. The inner label, which has a certain value, is carried in a header encapsulated along with the rest of the IP packet. The inner label carries information specific to the virtual private network. The outer label, certain value,

is an ordinary MPLS label that tells the rest of the network that the packet is to be delivered to destination router, with certain IP address. As such outer label can have multiple inner labels. The packet is sent on to the core of the network, which performs ordinary label switching, while forwarding the packet on towards destination router. When destination router receives the packet, it ignores the outer label, because it corresponds to destination router's own IP address. It then looks up the inner label, in a table (Figure 2-25). It then looks at the IP address on the packet, and finds where the packet is destined.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Moir's teaching to incorporate the detailed scheme of routing packets using inner labels and outer labels. The motivation is that label switching using inner labels and outer labels allows routers to make forwarding decisions based on the contents of a simple label, rather than by performing a complex lookup based on a destination address like ip address.

### ***Allowable Subject Matter***

7. Claims 4, 6, 10-13, 17, 19 and 23-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The information disclosure statement filed \*\*\* fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because \*\*\*. It has been placed in the application file, but the information referred to therein has not been considered as to the merits.



Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

**8. Reference pertinent to the art but not used in office action are as follows:**

- 1) Simple peering in a transport network employing novel edge devices, Baum et al. (US PAT PUB US2002/0024964).
- 2) System for managing connection oriented communication interface with flexible virtual channel association, Ogawa et al. (US PAT 6556569).
- 3) Switching system using identical switching nodes, Bales et al. (US PAT 5182751).
- 4) Resource and Protocol management for virtual private networks within multiprocessor atm switches, Dighe et al. (US PAT PUB US2002/0097725).
- 5) Method and apparatus for dynamically addressing and routing in a data network, Yemini et al. (US PAT PUB US2002/0091855).
- 6) Management and control of multi layer networks, Kirkby et al. (US PAT PUB US2002/0097747).

9. **Regarding IDS:** The first entry "Mitul Tiwari IP based Virtual Private Network..." under the section "Other Documents" in information disclosure statement filed 23 April 2002 is not considered, because the internet url link is non-existent.

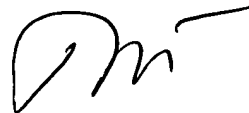
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Salman Ahmed whose telephone number is (571)272-8307. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571)272-3174. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Salman Ahmed  
Examiner  
Art Unit 2666

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DANG TON  
PRIMARY EXAMINER